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Sterilisation clips

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GB19900010696 19900512

Abstract of GB2243789

A sexual sterilisation clip comprises an upper and lower jaw 12, 14 of plastics material with capture means for capturing the fallopian tube or vas deferens, the capture means being formed as a profiled inner lining 26, 28 for the jaws or as a curved section provided with a soft lining (112, 114, Fig. 3).

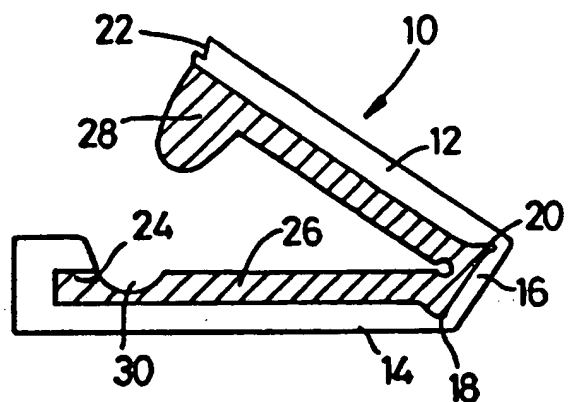


Fig. 1

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GB 2226958 A

GB 2212201 A

GB 2190297 A

EP 0246087 A2

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INT CL^a A61B 17/12, A61F 6/20

(54) **Sterilisation clips**

(57) A sexual sterilisation clip comprises an upper and lower jaw 12, 14 of plastics material with capture means for capturing the fallopian tube or vas deferens, the capture means being formed as a profiled inner lining 26, 28 for the jaws or as a curved section provided with a soft lining (112, 114, Fig. 3).

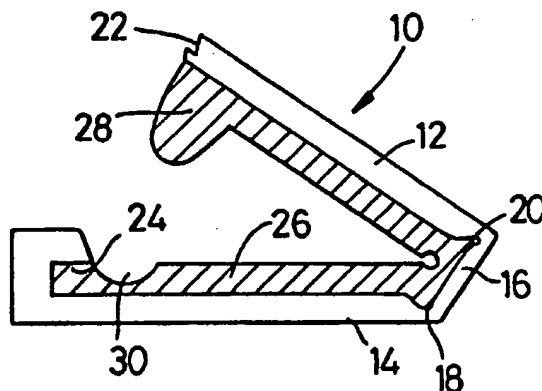


Fig. 1

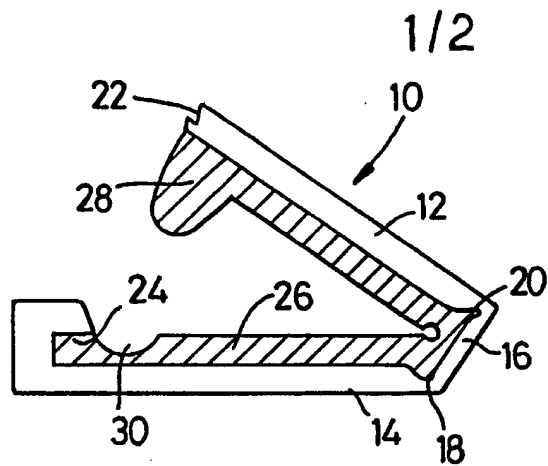


Fig. 1

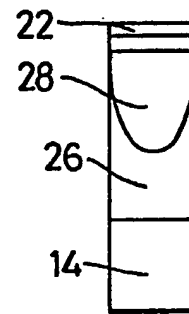


Fig. 2

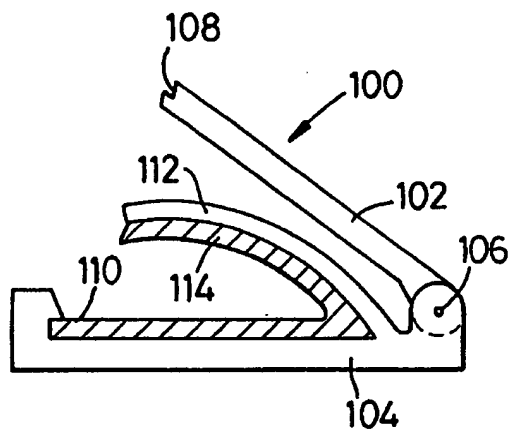


Fig. 3

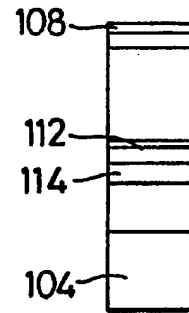


Fig. 4

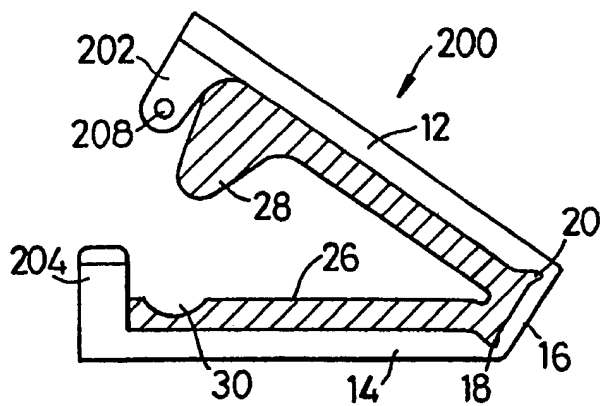


Fig. 5

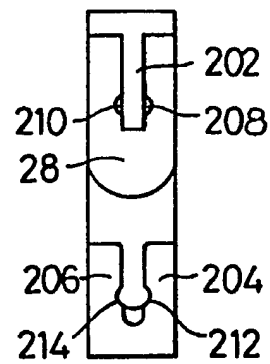


Fig. 6

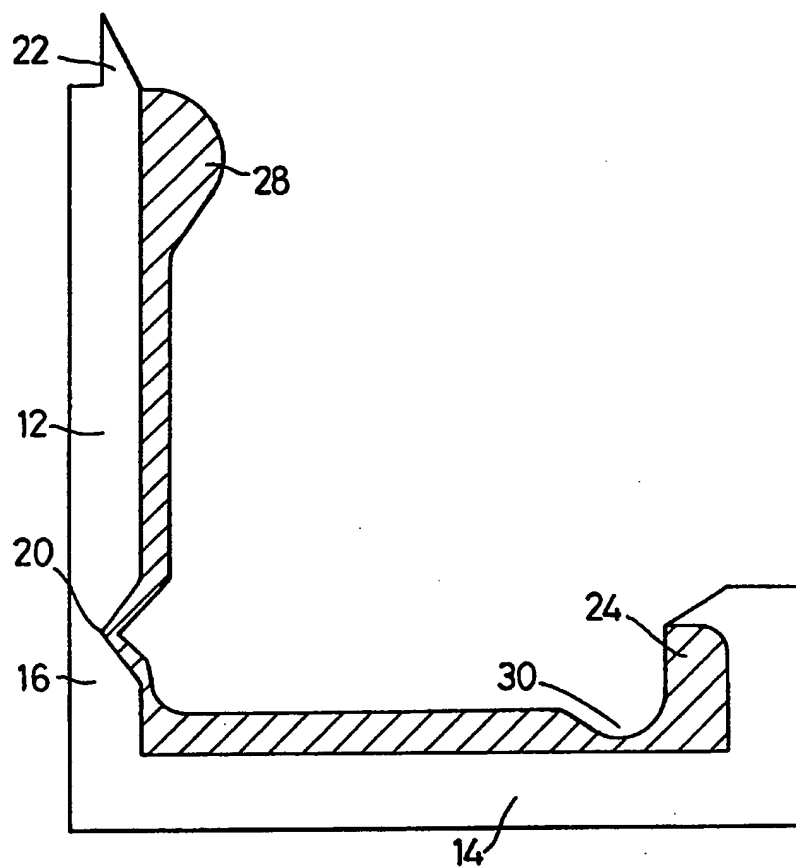


Fig. 7

STERILISATION DEVICES

The present invention relates to sexual sterilisation devices and more particularly to sexual sterilisation clips adapted to be clamped on a fallopian tube or a vas deferens to effect occlusion thereof.

It is an object of the present invention to provide sterilisation clips which may be manufactured with a frame constructed from plastics material.

The present invention provides a sexual sterilisation clip having a lower jaw member and an upper jaw member hingedly connected at one end to the lower jaw member, the upper and lower jaw members being provided, at an opposite end thereof in relation to the hinge, with co-operating latch means to secure the clip in a closed position, the clip being provided in an open position with projection means to provide initial capture of a fallopian tube or vas deferens.

Preferably the projection means in a first embodiment comprises a profiled inner top lining for the upper jaw.

In a second embodiment the projection means comprises a curved section attached to or formed integrally with the bottom jaw, the second curved section being provided with a lining.

Preferably the linings are made of silicone rubber.

Embodiments of the present invention will now be described, by way of example with reference to the accompanying drawings, in which:-

Figure 1 shows in side elevation a clip illustrating a first embodiment of the present invention;

Figure 2 shows the first clip in end elevation;

Figure 3 shows in side elevation a clip illustrating a second embodiment of the present invention;

Figure 4 shows the second clip in end elevation;

Figure 5 shows a clip in side elevation illustrating a third embodiment of the present invention;

Figure 6 shows the clip of Figure 5 in end elevation; and

Figure 7 shows an alternative clip.

With reference now to Figures 1 and 3 the clip 10 comprises an upper jaw 12 and a lower jaw 14 hingedly connected at one end by a slightly thinner section 16 moulded integrally with the upper and lower jaws and relieved at the corners 18, 20 to allow closure of the clip.

Closure of clip 10 is effected by squeezing the two jaw members together and latching is effected by co-operating detente 22 and a recessed portion 24 on the lower jaw. Once latched the clip cannot be opened without substantial force.

The internal surfaces of upper and lower jaws 12, 14 are lined with a soft lining 26, preferably of silicone rubber, which may be formed in one piece as shown or may be in two pieces joined at an appropriate position near the hinge 16.

The lining on the upper jaw member is provided with a top profile 28 which is enlarged to form a bulge at the latch end of the clip.

The lining on the lower jaw 14 is preferably provided with a profile which is relieved at 30 to permit the top bulge 28 to access without excessive closing pressure being required for the clip.

The profile 28 serves to capture the fallopian tube as the clip closes but prior to final closure of the clip thereby preventing the tube from escaping from the clip as the final high closing pressure is applied. The relieved portion 30 prevents excessive pressure having to be applied to the clip to effect closure.

The silicon lining forms a complete lining for the fallopian tube, completely filling the internal dimensions of the clip when closed thereby providing complete occlusion.

With reference to Figures 3 and 4 a second clip 100 is shown comprising upper and lower jaws 102, 104 connected by a hinge 106. Upper jaw 102 is provided with a detente 108 which co-operates with a recessed portion 110 on bottom jaw 104 to provide a latch for the clip.

Lower jaw 104 is provided with an integral flexible (i.e. thinner) section 112 which is curved as shown and the lower jaw 104 is lined with a flexible lining 114 preferably made of silicone rubber.

The flexible action 112 provides a means for capturing the fallopian tube during initial closure of the clip but prior to final closure pressure being applied. The lining 114 is

continuous around the inside of the lower jaw 104 and section 112 and therefore complete occlusion of the fallopian tube is effected.

By suitable design of the detents 22 and 108 of the respective designs of Figures 1, 2, and 3, 4 and the recessed portions 24, 110 the clip when closed will present a substantially completely flat top, this feature being advantageous.

With reference now to Figures 5 and 6 an alternative embodiment of the clip shown in Figures 1 and 2 is shown. In Figures 5 and 6 those parts performing the same or equivalent functions are given the same reference numerals.

The alternative clip 200 comprises upper and lower jaw members 12, 14 silicone lining 26 with profiles 28, 30 and is hinged 16, 18, 20 as in Figures 1 and 2. The latch means however comprises interdigitating fingers 202 (upper jaw) and 204, 206 (lower jaw). Finger 202 is provided with a broadened portion 208, 210 which co-operates with two recessed portions 212, 214 on respective fingers 204, 206 to provide positive latching for the clip.

This type of latching may also be used for the embodiment shown in Figures 3 and 4 but it is particularly advantageous for the clip of Figures 1 and 2 since the finger 202 provides a

support for profile 28.

The hinge for the clips may be of the type shown in Figure 1 or Figure 3. The hinge in Figure 1 has the advantage that the clip is of one piece manufacture.

The type of latching shown in Figures 4 and 5 can be used with the clip design of Figures 2 and 3.

With reference now to Figure 7, an alternative clip design is shown which is similar to the design of Figures 1 and 2.

The reference numerals of Figures 1 and 2 are used to identify parts performing similar functions. The practical dimensions (in mm) of the clip of Figure 7 are as follows:

L1	12.25
L2	1.54
L3	2.06
L4	4.67
L5	14.00
L6	2.75
L7	1.59
L8	0.71
L9	1.59
L10	5.06

CLAIMS

1. A sexual sterilisation clip having a lower jaw member and an upper jaw member hingedly connected at one end to the lower jaw member, the upper and lower jaw members being provided, at an opposite end thereof in relation to the hinge, with co-operating latch means to secure the clip in a closed position, the clip being provided in an open position with projection means to provide initial capture of a fallopian tube or vas deferens the projection means being provided by a soft lining.

2. A sexual sterilisation clip as claimed in claim 1 in which the projection means in a first embodiment comprises a profiled inner top lining for the upper jaw.

3. A sexual sterilisation clip as claimed in claim 1 in which the projection means comprises a curved section attached to or formed integrally with the bottom jaw, the second curved section being provided with an inner lining.

4. A sexual sterilisation device as claimed in claim 2 or claim 3 in which the linings are made of silicone rubber.

5. A sexual sterilisation clip having a lower jaw member and an upper jaw member hingedly connected at one end to the lower jaw member, the upper and lower jaw members being provided, at an opposite end thereof in relation to the hinge, with co-operating latch means to secure the clip in a closed position, the clip being provided in an open position with

projection means to provide initial capture of a fallopian tube or vas deferens in which both the upper and lower jaw members are provided with a rubber lining, in which the rubber lining of the upper jaw is provided with a bulge projecting towards the bottom jaw at the latch end of the upper jaw and in which the lining of the lower jaw is provided with a recess or relieved portion at the latch end of the lower jaw which co-operates with the bulge as the clip is closed to relieve pressure on the clip as the clip is closed.

6. A sterilisation clip as claimed in claim 5 in which the co-operating latch means comprises a detent on the upper jaw and a co-operating recessed portion on the lower jaw.

7. A sterilisation clip as claimed in claim 5 in which the co-operating latch means comprises co-operating interdigitating fingers provided respectively at the ends of the upper and lower jaws one of the fingers on one of the jaws being provided with a broadened portion which co-operates with a recessed portion on one of the fingers on the other jaw to provide a positive snap action latch for the clip.